

ANUCHIN, Nikolay Pavlovich, prof.; KRYLOVA, V.I., red.; TRUKHINA, O.N.,
tekhn. red.

[Forest management] Lesoustroistvo. Moskva, Izd-vo sel'khoz.
lit-ry, zhurnalov i plakatov, 1962. 567 p. (MIRA 15:5)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystven-
nykh nauk im. V.I.Lenina (for Anuchin).
(Forest management)

ANUCHIN, Nikolay Pavlovich, prof., doktor sel'khoz. nauk; BRILEVA,
V.F., red.izd-va; SHIEKOVA, R.Ye., tekhn. red.

[Grade tables for pine, spruce, larch, Siberian pine, fir,
birch, aspen, oak, and Carpathian beech] Sortimentnye i tovar-
nye tablitsy dlia sosny, eli, listvennitsy, kedra, pikhty, be-
razy, osiny, duba i buka karpatskogo. Izd.5-e, perer. i dop.
Moskva, Goslesbumizdat, 1963. 468 p. (MIRA 16:7)
(Forests and forestry--Tables and ready reckoners)

ALFEROV, Libeniy Afanas'yevich; ANUCHIN, N.P., nauchn. red.;
SOROKO, Ya.I., red.; RAKITIN, I.T., tekhn. red.

[Life of the forest] Zhizn' lesa. Moskva, Izd-vo "Znanie,"
1963. 30 p. (Novoe v shizni, nauke, tekhnike. VIII Seriya:
Biologiya i meditsina, no.14) (MIRA 16:9)

1. Chlen-korrespondent Vsesoyusnoy akademii sel'skokhosyay-
stvennykh nauk im. V.I.Lenina (for Anuchin).
(Forests and forestry)

ANUCHIN, N.P.

Theory and practice of shelterbelt afforestation. Agrobiologia
no.4:589-606 J1-Ag '63. (MIRA 16:9)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina.
(Windbreaks, shelterbelts, etc.)

ANUCHIN, N.P., prof.

Results of investigating forest shelterbelts. Zemledelie 25
no.5:27-35 My '63. (MIRA 16:7)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh
nauk imeni Lenina.
(Windbreaks, Shelterbelts, etc.)

SVALOV, Nikolay Nikolayovich; ANUCHIN, N.P., red.

[Principles of organizing forest management and exploitation in heavily wooded regions] Osnovy organizatsii lesnogo khoziaistva i lesopol'zovaniia v mnogolesnykh raionakh. Moskva, Goslesbumizdat, 1963. 208 p. (MIRA 17:5)

PERECHIN, Boris Nikolayevich; Perekhin, Boris
ANUCHIN, N.F., red.

[Forest exploitation in the U.S.S.R. (1944-1962) i
pol'zovanie v SSSR (1944-1962 gg.). 244 p. 12a. Moscow:
Izd-vo "Lesnaya promyshlennost'," 1962. 128 p.
(MOSU 1962)]

AMUCHIN, N.I.; KRYZHAK, V.S., otv. red.

[Tables for determining standard logging units] Tab-
litay dlia opredeleniia raschetnoi dorozhki. Moskva,
Vses. nauchno-issl. in-t lesovedstva i mekhanizatsii
lesnogo khoz., 1964. 55 p. (MIRA 17:11)

MEHLEN, N.P., prof., otv. red.; PAVLOV, M.M., red.;
 DERYABIN, D.I., kand. sel'khoz. nauk, red.; ZELEZNY,
 G.F., kand. sel'khoz. nauk, red.; IVANNIKOV, S.P., kand.
 sel'khoz. nauk, red.; IVANOV, G.G., red.; LARUKHIN, G.A.,
 kand. tekhn. nauk, red.; LONITSKIY, K.B., doktor sel'khoz.
 nau. zam. otv. red.; MIRNOV, V.V., kand. sel'khoz. nauk,
 red.; RODICHOV, A.Ya., kand. sel'khoz. nauk, red.;
 TRUBNIKOV, M.M., kand. ekon. nauk, red.; CHEVEDAYEV, A.A.,
 kand. sel'khoz. nauk, red.; SHUKAROV, V.S., kand. sel'khoz.
 nauk, red.; YURGENSON, I.B., doktor biol. nauk, red.; TROPIN,
 I.V., kand. sel'khoz. nauk, red.

[Studying the performance of new machinery in silvicultural
 work; scientific papers] Issledovanie rabochnykh protsessov
 novykh mashin na lesokul'turnykh rabotakh; nauchnyye trudy.
 Moskva, Izd-vo "Lesnaya promyshlennost'," 1964. 111 p.
 (MLA 17:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut
 lesovodstva i mekhanizatsii leznogo khozyaystva.

ANUCHIN, P.I.

Corrosion of stainless steel in monobasic carboxylic acids. Gidroliz.
i lesokhim. prom. 17 no.7:14-15 '64.

(MIRA 17:11)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.

ANUCHIN, P.I.; FIRSOV, A.I.; MIKHAYUK, G.F.

Corrosion resistance of various copper types in acetic acid solutions. Gidreliz. i lesokhim. 18 no.2:12-14 '65.

1. Tsentral'nyy nauchno-issledovatel'skiy i proyektnyy institut
lesokhimicheskoy promyshlennosti. (MIRA 18:5)

ACC NR: AP6012088

(A,N)

SOURCE CODE: UR/0328/65/000/008/0019/0021

AUTHOR: Anuchin, P. I.

ORG: TsNILKHI

TITLE: The corrosion of stainless steels in the acetic acid industry

SOURCE: Gidroliznaya i lesokhimicheskaya promyshlennost', no. 8, 1965, 19-21

TOPIC TAGS: corrosion inhibitor, corrosion resistant steel, corrosion protection, acetic acid, formic acid, acetate, copper, permanganate, alloy, chromium steel, stainless steel/ Kh15M3 stainless steel, Kh17M3 stainless steel, Kh12M3 stainless steel, 1Kh18N9 stainless steel, OKh17T stainless steel

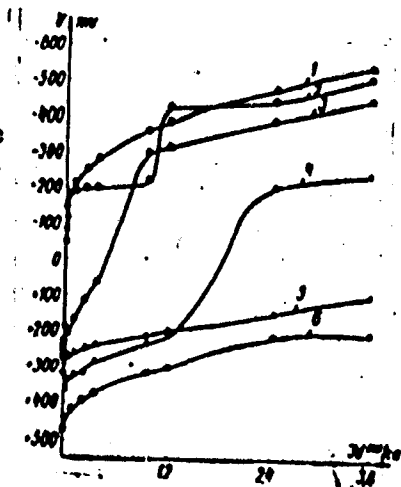
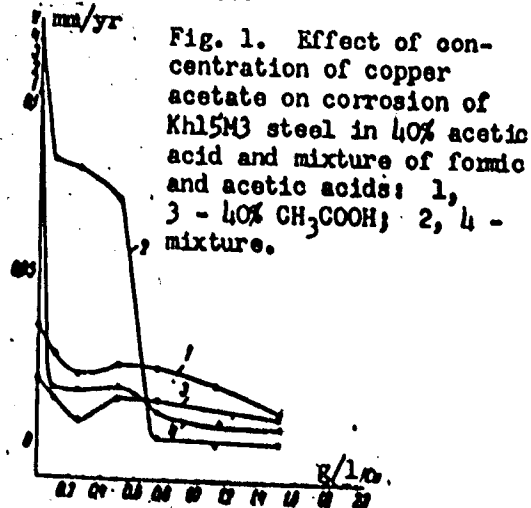
ABSTRACT: The effect on stainless steels of the presence (in an aggressive medium) of copper acetate, bichromate, and potassium permanganate is studied. The effect of copper acetate on Kh15M3, Kh17M3, Kh12M3, 1Kh18N9, and OKh17T stainless steels in acetic acid and in a mixture with formic acid is studied. Gravimetric and electrochemical methods are used. A 20% solution of formic acid with an addition of acetic acid (5% of formic) was used. The addition of copper acetate reduces the corrosion of the steels (see Fig. 1). In the presence of as little as 0.1 g/liter copper acetate, the cathode potential is greatly shifted to the positive side (see Fig. 2). Additions of permanganate and bichromate to boiling 80% acetic acid reduces the corrosion of chrome steels as a result of the expansion of the passive region on the

Card 1/2

UDC: 620.193:661.731

L 29526-66

ACC NR: AP6012088



anode curves and the considerable reduction of the critical current of anode passivation of the alloy. Orig. art. has: 9 graphs.

SUB CODE: 11/

SUBM DATE: none/

ORIG REF: 002/

OTH REF: 002

Cord 2/2 ✓

ANUCHIN, Sargey Andreyevich; BORIK, Aleksandr Galashivich; SHAKHOVA, Nina Vasil'yevna; KUKIN, G.N., doktor tekhnicheskikh nauk, professor, retsenzent; BEKETOVA, Ye.M., redaktor; EL'KINA, E.M., tekhnicheskii redaktor

[Design and servicing of twisting machines used in caprone manufacture] Ustroistvo i obsluzhivanie krutil'nykh mashin kapronovogo proizvodstva. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 99 p.
(Spinning machinery) (MLRA 7:10)
(Mylon)

~~SECRET~~
ANUCHIN, V., starshiy leytenant

More about the demountable metal triangle. Voen.-inzh. zhur.
101 no.1:48 Ja '58. (MIRA 11:2)
(Snow removal)

AKHIEZER, V. A.

RT-1367 /Trans-Carpathian District: Scientific-Popular Geographic Description/
Abridged from pp. 3-42 of: Zakaryatskaia Oblast' Nauchno-Populiarnoe Geograficheskoe
Opisanie. Moscow, 1947.

ANUCHIN, V.A.

ANUCHIN, V.A. and SPIRIDONOV, A.I. Zakarpatskaia Oblast' (nauchno-populiarnoe geograficheskoe opisanie). Moskva, Geografiz, 1947. 173 p.
"Literatura": p. 170-174.

DLC: DB346.A65

So.: LC, Soviet Geography, Part II, 1951/Unclassified

AMUCHIN, V. A.

421hh AMUCHIN, V. A. Shangkhaiguan'skiy Koridor. Geogr. ocherk. Voprosy geografii, sb, 8, 1948, c. 61-76.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

1. ANUCHIN V. A.
2. USSR (600)
4. Geology and Geography
7. 'Geographical Outlines of "anchuria," V. A. Anuchin. (Moscow, Geography Press, 1948).
Reviewed by YU. K. Yefremov No 4 1949.
9. ■ Report U-3081, 16 Jan. 1953, 'unclassified.

ANUCHIN, V. A.

"Socialist Reorganization of the Transcarpathian Province," Geog. v Shkole,
No 2, 1952

MIRA June 1952

AMBIEN, V. A.

"Subtropics in Transcarpathia," Vokrug Sveta, No 6, 1952

MLA Nov 52.

ANUCHIN, V. A.

Meteorological Abstr.
Vol. 4 No. 10
October 1953
Part 1
Climatology and
Bioclimatology

110.240
Anuchin, V. A. Geograficheskii atlas Kitaiskoi Narodnoi Respubliki. [Atlas of Chinese People's Republic]. *Trudy MGU*, Moscow, 1952, Sept. 1952, DLC--
description of the third edition of the atlas which appeared in 1951. Climatic maps and
description of characteristics of individual meteorological variables, in particular rainfall, are
included. *Subject Headings:* 1. Atlases. 2. China. -- J.L.P.

551.582.3(51)

ANUCHIN, V.A.

Historical introduction to the economic geography of the Chinese People's Republic. Vop.geog. vol.29:50-72 '52.

(MLRA 6:7)

(China--History)

ANUCHIN, V. A. Docent

"The Results of Works in Transcarpathia in Connection with the Introduction of New Crops," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953

Translation U-7895, 1 Mar 56

ANUCHIN, V.A., kandidat geograficheskikh nauk (Moscow)

Two books about China ("East China (maritime provinces)" E.M. Mursaev; "Northeast China." Reviewed by V.A. Anuchin) Priroda 44 no.10: 122-124 0'55.

(MIRA 8:12)

(China--Description and travel) (Mursaev, E.M.)

ANUCHIN, Vsevolod Aleksandrovich; MAROOLIN, Ya.A., redaktor; KOSHULEVA, S.M.
tekhnicheskii redaktor

[Geography of Soviet Transcarpathia] Geografiia Sovetskogo Zakarpat'ia.
Moskva, Gos. izd-vo geogr. lit-ry. 1956. 294 p. (MLRA 9:10)
(Transcarpathia--Geography)

ANUCHIN, V.A.

The essence of geographical environment and the manifestation of
indeterminism in Soviet geography. Vop. geog. no. 41:47-64 '57.
(Geography) (MIRA 10:12)

ANUCHIN, V.A., red.; BUGAYENKO, P.I., red.; YFROKHINA, R.A., red.;
KHAKIMOV, V.Z., red.; GEORGIYENVA, G.I., tekhn.red.

[Natural zones and agricultural geography of Soviet Trans-
carpathia; collection of articles] Prirodnaia sreda i geo-
grafiia sel'skogo khoziaistva Sovetskogo Zakarpat'ia;
sbornik statei. Moskva, 1959. 193 p. (MIRA 12:10)
(Transcarpathia--Physical geography)
(Transcarpathia--Agriculture)

ANUCHIN, V.A.

Theoretical problems in geography. Nauch.dokl.vys.shkoly; geol.-
geog.nauki no.1:7-14 '59. (MIRA 12:6)

1. Moskovskiy universitet, geograficheskiy fakul'tet, kafedra
ekonomicheskoy geografii zarubezhnykh stran.
(Geography)

ANUCHIN, Vsevolod Aleksandrovich; SOKOLOV, V.V., kand.filosof.nauk,
spets.red.; YANIKOV, G.V., red.; BELICHENKO, R.K., mladshiy red.;
CHERNYKH, D.A., tekhn.red.

[Theoretical problems in geography] Teoreticheskie problemy
geografii. Moskva, Gos.isd-vo geogr.lit-ry, 1960. 264 p.
(MIRA 13:12)

(Geography)

ANUCHIN, V.A.; YUDKEVICH, O.Yu., red.

[Criticism on the comprehensiveness of geography] O kritike
edinstva geografii. Predisl. N.N.Baranskogo. Moskva, Mosk.
gos. univ. im. M.V.Lomonosova, 1961. 32 p. (MIRA 15:2)
(Geography--Study and teaching)

ANUCHIN, V.A.

January plenum of the Central Committee of the CPSU on geography.
Geog. i khos. no.9:3-4 '61. (MIRA 14:11)
(Communist Party of the Soviet Union)
(Geography, Economic)

ANUCHIN, V.A.

New book with old ideas. Geog. i khoz. no.12:93 '63.
(MIRA 16:12)

ANUCHIN, V.A.

Principles of Soviet regional geography. Vest. Mosk. un. Ser.5: Geog.
19 no.5:14-20 S-O '64. (MIRA 18:1)

1. Kafedra stran narodnov demokratii Moskovskogo universiteta.

RYABCHIKOV, A.M., prof.; SHCHUKIN, I.S.; SAUSHKIN, Yu.G., prof.;
GVOZDETSKIY, N.A.; MARKOV, K.K.; ANUCHIN, V.A.; SOLNTSEV,
I.A., doktor geogr. nauk

Senior Soviet Geographer; 1875- ; 90th birthday of Aleksandr
Nikolaevich Dzhavakhishvili. Vest. Mosk. un. Ser. 5: Geog.
20 no.5:82 S-O '65. (MIRA 18:12)

AFANAS'YEV, A.P.; ANUCHIN, V.G.; VINOGRADOV, K.V.; GARANINA, M.M.;
GILEROVICH, M.M.; DUBROVSKIY, Ye.P.; YEVSTIGNEYEV, A.A.; IOKHVIN,
M.R.; KALMYKOV, P.M.; KRENGEL', I.TS.; LOSEV, I.G.; MAYEVSKIY,
F.M.; MAZEL', S.I.; MIZHERITSKIY, G.S.; NOVIKOV, M.I.; NAZAR'YEV,
O.V.; PCHELKINA, I.A.; RAZUMOV, V.S.; ROZENBLYUM, I.M.; SEROV, B.P.;
SKRYPNIK, T.I.; SAL'VIN, Ye.S.; SMOTRINA, V.F.; TELEPNEVA, N.S.;
FIL'CHAKOV, N.I.; KHRAPUNOVA, Ye.L.; UNDREVICH, G.S.; UR'T'YEV, P.P.;
SHILOV, A.A.; SHLYKOV, A.P.; KIRILLOV, L.M., red.; MARKOCH, M.G.,
tekhn.red.

[Regulations on the construction of municipal telephone network lines]
Pravila po stroitel'stvu lineinykh sooruzhenii gorodskikh telefonnykh
setei. 2.izd. Moskva, Svyaz'izdat, 1962. 511 p. (MIRA 15:5)

1. Russia (1923- U.S.S.R.) Ministerstvo svyazi. Glavnoye upravleniye
kapital'nogo stroitel'stva.
(Telephone lines)

ANUCHIN, V.V.

Diagnostic difficulties in the expertise on alcoholic paranoids.
Prak.sudelnopsikh.ekspert. no.7:42-49 '62. (MIRA 16:2)
(PARANOIA) (ALCOHOLISM)

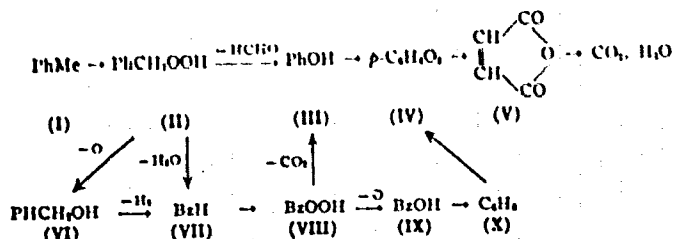
ANUCHIN, V.V.

Clinical aspects and forensic psychiatric evaluation of
protracted alcoholic paranoia. Probl'sud.psikh. no.12:59-71
'62. (MIRA 16:4)
(FORENSIC PSYCHIATRY) (PARANOIA) (ALCOHOLISM)

ANNUAL, I-1

Mechanism of the vapor-phase oxidation of phenylmethyl alcohol and benzaldehyde, in the presence of chromium compounds. B. V. Suvorov, S. R. Raikov, and I. G. Anuchina. Dokl. Akad. Nauk S.S.S.R. 187, 79-82 (1953). Oxidation of PhMe in the temp. range 300-75° yields mainly CO₂, H₂O, BaH, BaOH, quinone, maleic anhydride, and anthraquinone, and small amts. of PhOH and HCHO. The process can be represented by the scheme of these products, only VI was

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
Organic Chemistry



not detected. The scheme involves 2 intermediate peroxides, II and VIII. Anthraquinone (XI) was detected in the oxidation of I, but not in the oxidation of either VI or VII. The formation of XI evidently proceeds by way of I + O₂ + I $\xrightarrow{-\text{H}_2\text{O}}$ C₁₄H₈ $\xrightarrow{-\text{O}_2}$ XI. In the oxidation of I, the total amt. of VII + IX does not exceed 4%; that this is due to further reactions of VII and IX follows from the observation with a contact time shortened by a factor of 4, the yield of

VII is as high as 25% of the original I. In the oxidation of para VII in the same temp. range, the main products are IX, IV, and V; as a function of the temp., their amts. pass, successively, through max. Advance addn. of H_2O increases the total yields markedly, but without altering the consecutiveness of the max. Oxidation of VI also yields, in the main, the products of incomplete oxidation, but in somewhat smaller amts. than VII. Production of VII and of IX proceeds simultaneously; this is taken as evidence that IX is formed not only from VII, but also directly from VI, over the corresponding hydroperoxide, $VI \xrightarrow{+O_2} PhCH(OH)OOH \xrightarrow{-H_2O} IX$. Addn. of H_2O vapor again increases the yields of the intermediate products, without altering the disposition of the max.

N. Thon

MF
7-10-51

ROZHKOV, A.M.; RAFIKOV, S.R.; ANUCHINA, I.G.

Copolymerisation of dipentene and acrylonitrile. Izv.Sib.otd.
AN SSSR no.5:48-54 '59. (MIRA 12:10)

1. Khimiko-metallurgicheskiy institut Sibirskogo otdeleniya
Akademii nauk SSSR.
(Acrylonitrile) (Dipentene)

ANUCHINA, I.G.

Chemical composition of Siberian larch wood. Trudy Khim.-met.
Inst. Sib. otd. AN SSSR no. 13:37-40 '59. (MIRA 14:1)
(Larch) (Wood--Chemistry)

~~16(1)~~ 16.3500

66397

1

AUTHORS: Anuchina, N.N., and Yanenko, N.N.

SOV/20-128-6-1/63

TITLE: Implicit Splitting Schemes for Hyperbolic Equations and Hyperbolic Systems

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1103-1105 (USSR)

ABSTRACT: K.A. Bagranovskiy and S.K. Godunov [Ref 1] approximated a system of partial differential equations of hyperbolic type by a one-dimensional explicit difference scheme which was stable under certain assumptions on the step. The authors use an analogous method which is denoted as a splitting method, in order to approximate equations of hyperbolic type for an arbitrary step by one-dimensional implicit difference schemes. E.g. to the equation

$$(18) \quad \frac{\partial^2 p}{\partial t^2} - \sum_{i=1}^n \frac{\partial^2 p}{\partial x_i^2} = 0$$

there corresponds the splitting scheme

4

Card 1/2

Implicit Splitting Schemes for Hyperbolic Equations
and Hyperbolic Systems

66397

SOV/20-128-6-1/63

$$(19) \quad \frac{n+1 + \frac{s}{m} - p}{2} \quad \frac{n+1 + \frac{s-1}{m} - p}{2} \quad \frac{n + \frac{s}{m} + p}{2} \quad \frac{n + \frac{s-1}{m} + p}{2}$$

$$= \frac{\Delta_s \Delta_{-s}}{h_s^2} \frac{n+1 + \frac{s}{m} - p}{4} \quad \frac{n+1 + \frac{s-1}{m} - p}{4} \quad \frac{n + \frac{s}{m} + p}{4} \quad \frac{n + \frac{s-1}{m} + p}{4}$$

The scheme (19) approximates (18), is spectrally stable and consequently convergent. Linearized equations of the gas dynamics are considered in detail. There is 1 Soviet reference.

PRESENTED: June 6, 1959, by N.N. Bogolyubov, Academician.

SUBMITTED: March 7, 1959

Card 2/2

ANUCHINA, N.N.

Difference schemes for solving the Cauchy problem for
hyperbolic symmetric systems. Dokl. AN SSSR 154 no.2:
247-250 Ja'64. (MIRA 17:2)

1. Predstavleno akademikom I.N. Vekua.

S/137/62/000/004/026/201
A006/A101

AUTHORS: Sobinyakova, N. M., Ivantsova, G. A., Anuchina, T. M.

TITLE: New studies in the field of hydrometallurgy of molybdenum ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 21, abstract 40128
(V sb. "Mineral'n. syr'ye", no. 2, Moscow, 1961, 206-225)

TEXT: The authors studied the possibility of side-extracting Mo sulfide from complex sulfide ore by sulfuric-acid lixivation with the use of oxidizers. It was found that for complex ores with low sulfide content the extraction of Mo sulfide as a result of its oxidation by the addition of oxidizers was practically expedient. The effectiveness of the following oxidizers acting upon MoS_2 , was investigated: chlorate, bichromate and KMnO_4 bleaching powder, pyrolusite and HNO_3 . For practical use in acid media K-chlorate and HNO_3 are recommended as oxidizers. In acid leaching-out of ores under optimum conditions for both oxidizers Mo extraction is 83 - 85% of the total Mo amount contained in the ore. The consumption of the mixture (75% H_2SO_4 and 25% HNO_3) is 7.5% of the ore weight; the consumption of K1 chlorate or HNO_3 is 1.2% or 1.87% respectively of the ore weight. Conditions were worked out for Mo separation

Card 1/2

New studies in the field ...

S/137/62/000/004/026/201
A006/A101

out of the solution with the use of new industrial anionite grades [ЭДЭ -10П (EDE-10P), АВ -16 (AV-16), АИ -1 (AN-1) and НО (NO)]. It was established that it was expedient to eluate Mo by ammonia solutions with NH_3 concentration of >50 g/l. There are 30 references.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

1. Life on a Dnieper Valley kolkhoz

Life on a Dnieper Valley kolkhoz Moskva, Gos. izd-vo selkhoz lit-ry, 1964.
63 p.

1. Agriculture, Cooperative - Russia - Dnieper Valley

ANJCHKIN, G.P.

Investigating the dynamics of automatic control of a turboprop
engine having a limiter of the negative thrust. Avtom.reg.
aviadvig. no.4:95-102 '62. (MIRA 15:11)
(Airplanes--Turbojet engines)

ANUCHKIN, M.P.

CAND TECH SCI

Dissertation: "Investigation of Optimum Shapes for Beams and Columns made of Thin-walled Stamped Sections."

6 December 49

Central Sci Res Inst of Industrial Structures.

SO Vecheryaya Moskva
Sum 71

183T52

ANUCHKIN, M. P.

USSR/Engineering - Welding, Testing

Jan 51

"Internal Stresses in Welded Joints of Pipe Lines,"
M. P. Anuchkin, Cand Tech Sci, NIIStroyneft'

"Avtogen Delo" No 1, pp 11-14

Used pipes of 325-mm diam, 10-mm wall to study transverse contraction of pipe joints and distribution and magnitude of int stresses in welded joint. Also subjected joints of pipes 125 mm in diam to tension tests, showing single test is insufficient to det actual static strength of welded joints. Double or triple tests required with load carried above yield point each time.

183T52

ANUCHKIN, M. F.

PA 233T48

USSR/Metallurgy - Welding, Pipes

Aug 52

"Strength of the Welded Joints of Pipelines,"
M.P. Anuchkin, Cand Tech Sci, NIISTroyneft' /Sci
Res Inst for Construction of Enterprises of the
Gas and Petroleum Ind?/

"Avtogen Delo" No 8, pp 13-16

Analyzes results of exptl investigations on following subjects: (a) studying behavior of welded joints under tension, (b) detg mech characteristics of welded joint and base metal of whole pipes; (c) investigating conditions for failure of welded joints and effect of aging and plastic deformations of weld metal on plastic properties of joint.

233T48

...KIN, M.Y.
KISELYUK, F.I., doktor tekhnicheskikh nauk; MAKEL', A.T., kandidat tekhnicheskikh nauk; FAL'KEVICH, A.S., inzhener; ANUCHKIN, M.S., kandidat tekhnicheskikh nauk; NEYZEL'D, I.Ye., inzhener; LIVSHITS, L.S., kandidat tekhnicheskikh nauk; POLYAKOVA, P.B., inzhener; BAKHRAKH, L.P., inzhener.
Welding with electrode cluster. Section of the All-Union Scientific Engineering Technological Association of Welders in the All-Union Scientific Research Institute for Petroleum Industry Construction. Avtog. delo 24. (MLRA 6:5)
(Electric welding)
no.6:30 Je '53.

ANUCHKIN, M. P.

AID P - 210

Subject : USSR/Engineering
Card : 1/1
Author : Anuchkin, M. P.
Title : Causes of Failure of Welded Seams and Conditions
for Welded Pipe Lines of Uniform Strength
Periodical : Neft. khoz., v. 32, #3, 42-49, Mr 1954
Abstract : The study of various methods of electric welding
of pipes is presented. The strength of the pipe
joint is analysed in respect to the material of
the pipe and welding method. The results of com-
parative tests are presented in 3 tables and 3 charts.
Institution : None
Submitted : No date

ANUCHKIN, M.P.

AID P - 552

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 18/29

Author : Anuchkin, M. P.

Title : Rational method of reinforcing of the welded junction
of the pipe lines

Periodical : Neft. Khoz., v. 32, #7, 70-74, J1 1954

Abstract : General description of welded pipe line reinforcements of
various types (sleeves, leaves, angles, etc.) is given.
The author also presents the physical characteristics and
dimensions of weld-reinforcing materials and the stresses
developed in the junctions. 2 drawings, 4 charts, 2 tables,
and 2 Russian references (1951, 1952).

Institution : None

Submitted : No date

ANUCHKIN, M. P.

U S S R .

✓ RESEARCH ON CAUSES OF FAILURE OF TIGHTNESS AND STRENGTH OF LONGITUDINAL JOINTS OF GAS PIPE LINES. ANUCHKIN, M. P. (Sov. Min. (Oil Ind., Moscow), Jan. 1956, 7-8. 1. A gas pipe line of low alloy steel built in 1942-1950 has failed in longitudinal joints one year after laying. The joints are given of cracks in places cut from the line. Samples of the joints were cut in places and 25 kg were put to test. The test results of the joints at the end of the weld. It is recommended that the joints in such high pressure pipes should be welded with both higher and lower quality weld. The welding technique should be worked out. (U.S.)

62

AMENKOV, N.I.; ANUCHAIN, N.I.

Pipes for gas pipelines in the Far North. Stroi. truboprov. no.9:
3-6 S '64. (MIRA 17'10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu
magistral'nykh truboprovodov.

ANUCHKIN, M.P., kandidat tekhnicheskikh nauk; LIVSHITS, L.S., kandidat tekhnicheskikh nauk.

Causes for the cracking of welded joints in pipelines. Trudy VNI
Stroinefti no.4:5-25 '56. (MLRA 10:1)
(Petroleum--Pipelines) (Pipelines--Welding)

ANUCHKIN, M.P., kandidat tekhnicheskikh nauk.

New brands of steel for the manufacture of large-diameter petroleum
gas pipes with a longitudinal electrically welded seam. Trudy
VNIISTROINEFT' no.7:53-64 '56. (MLRA 9:11)
(Petroleum--Pipelines)
(Pipe, Steel--Welding)

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000101820007-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000101820007-2"

AUTHOR: None Given 125-58-6-13/14

TITLE: The All-Union Scientific-Technical Conference on the Production of Welded Pipes and the Assembly Welding of Main Ducts (Vse-soyuznoye nauchno-tekhnicheskoye soveshchaniye po proizvodstvu svarnykh trub i montazhnoy svarke magistral'nykh truboprovodov)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 6, pp 94 - 99 (USSR)

ABSTRACT: An All-Union scientific-technical conference on pipe-welding took place in February 1958 at the Institut elektrosvarki imeni Ye.O. Patona (Institute of Electrowelding imeni Ye.O. Paton). It was convened by the Tsentral'noye pravleniye NTO neftyanoy promyshlennosti (NTO Central Administration of the Oil Industry), the Glavgaz attached to the USSR Council of Ministers, and the Institute of Electrowelding imeni Ye.O. Paton. The conference was opened by M.V. Sidorenko, President of the NTO Central Administration of the Oil Industry and Deputy Director of the USSR Glavgaz, who delivered an introductory report on the development of the gas industry and on pipe production requirements. The conference then heard the following reports: B. Ye. Paton, Director of the Institute of Electrowelding, Member-Correspondent of the AS UkrSSR, on the production of welded

Card 1/5

1986-01-17/11
The All-Union Scientific-Technical Conference on the production of welded pipes and the Assembly Welding of Main Ducts

pipes and mechanization of welding in pipe-line construction. S.I. Borisov, Doctor of Technical Sciences, Deputy-director of VNITI, on scientific research in the production of thin-walled pipes of large diameters; V.I. Gorodetskiy, Chief Engineer of Ukgiprokaz, on the calculation of main ducts; A.P. Anuchkin, Candidate of Technical Sciences from VNIIST, on the technical requirements of high-pressure pipes; R.I. Lashkevich, Candidate of Technical Sciences from the Institute of Electrowelding imeni Ye.O. Paton, on modern technological systems and equipment for the production of large-diameter pipes; S.L. Mandel'berg (Institute of Electrowelding imeni Ye.O. Paton), Candidate of Technical Sciences, on the production technology and properties of straight-seam welded, large-diameter gas-pipes; G.L. Livshits (TsNIIChM), Candidate of Technical Sciences, on steels for high-pressure oil-pipes; I.A. Mal'kov, Engineer from USSR Glavgaz, on technical conditions for oil-gas pipes abroad and particularly in the US; A.M. Garegul', Engineer, Chief of the Pipe-welding Workshop at the Chelyabinsk Plant, on experiences in the production of welded large-diameter tubes; G.V. Rayevskiy, Candidate of Technical Sciences (Institute

Card 2/ 5

ANUCHKIN, M.P., kand. tekhn. nauk; ANENKOV, N.I., inzh.; SHAKHOVSKAYA, G.V.,
inzh.

Welded pipe strength in main trunk gas lines Svar. proizv. no.2:
21-22 F '59. (MIRA 12:1)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.
(Pipe, Steel--Welding) (Welding--Testing)
(Gas, Natural--Pipelines)

ANUCHKIN, M.P., kand.tekhn.nauk

Welded gas and petroleum pipelines in foreign countries. Stroi,
truboprov. 4 no.12:27-29 D '59. (MIRA 13:5)
(United States--Pipe--Steel)

NIKOLAYEV, S.I., red.; SALUKVADZE, V.S., red.; ANDRIANOV, K.I., red.; VASIL'YEV, A.Ye., red.; ZHIKHAREVA, G.P., red.; KRYLOV, P.I., red.; KSHONDZER, G.L., red.; KHRAMIKHIN, F.O., red. [deceased]; CHEREMISINOV, M.M., red.
 Prinimali uchastiye: ANUCHKIN, M.P., red.; GRIGOR'YEVA, M.B., red.; ZHUKOV, V.I., red.; KALYUSHNYY, N.G., red.; KAMERSHTEYN, A.G., red.; KOZLOVSKAYA, A.A., red.; LAVROVA, N.P., red.; NUSOV, G.I., red.; PAL'KEVICH, A.S., red.; YERSHOV, P.R., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Safety regulations for constructing steel pipelines] Pravila tekhniki besopasnosti pri stroitel'stve magistral'nykh stal'nykh truboprovodov. Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry, 1960. 235 p. (MIRA 13:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gazovoy promyshlennosti.
2. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (for Anuchkin, Grigor'yeva, Zhukov, Kalyushnyy, Kamershteyn, Koslovskaya, Lavrova, Nusov, Pal'kevich), (Pipelines) (Industrial safety)

3/035/66/0001010/002/006
AGS/A029

AUTHOR: Anuchkin, M.P. Candidate of Technical Sciences

TITLE: New Technical Requirements for the Supply of Electric-Welded Pipes

PERIODICAL: Stroitel'stvo truboprovodov, 1960, No. 10, p. 28

TEXT: New Technical Requirements YMTY No 203-60 (ChMTU No. 203-60) for the supply of 720 and 820 mm pipes on the Chelyabinskii trubnyy zavod (Chelyabinsk Pipe Plant) have been issued. These introduce in general higher claims in regard to the plasticity and toughness of the metal, as well as to the accuracy of dimensions. The new Technical Requirements are considered temporary due to pending improvements in the quality of the metal. The tensile strength of 48 kg/mm² has remained the same, while the yield point must not be lower than 34 kg/mm² instead of formerly 38 kg/mm². This enables manufacturers to raise the plastic property and the toughness of the steel. The lowering of the yield point permits to decrease the carbon content in steel, which brings down the percentage of metal deformation in tube expanding. In accordance with statistical data the relative elongation of sheet steel 19Г (19Г) has increased on an average of 2-3 % in 1960 as compared with 1959. To guarantee plasticity and toughness of the metal in finished pipes, the Technical Conditions raise the re-
Card 1/2

3/035/60/000/010/002/006
A053/A029

New Technical Requirements for the Supply of Electric-Welded Pipes

quirements for the value of relative elongation and the value of the ratio between yield point and tensile strength. In this connection 18 % for the former and 0.82 % for the latter involve rejection of products. Due to the fact that plants still lack experience in producing pipes, a certain allowance is granted until January 1961. Technical Conditions provide also for certain restrictions on excessive expansion of metal, as a result of pipes being expanded: for 720 mm pipes expansion should not exceed 1.2 %, and for 820 mm pipes 2.2 %. Deformation of pipes will be limited in 1961 to 1.2 % for both 820 and 720 mm pipes. The Technical Conditions ChMTU No. 203-60 also raise the accuracy norms for pipes: the tolerance for the outside diameter of 720 mm is ± 4 mm (instead of ± 6.5 mm) and the outer diameter of 820 mm ± 5 mm; for pipe ends the tolerances are ± 2 mm and ± 3 mm, respectively. The new method of determining the tolerance of diameter is done by taking the tape measurement of the perimeter of the pipe and divide it by 3.14. The ellipse (difference between minimum and maximum diameters) should not exceed 6 mm for 720 mm pipes, and 8 mm for 820 mm pipes. ChMTU No. 203-60 provides for a greater variety of steel to be used, adding the two new grades 14 ГН (14GN) and 15 ГН (15GN) of natural alloy steel of the Orsk-Khalilovo Plant containing 0.4 - 0.8 % nickel.

Card 2/2

TURKIN, V.S.; ANUCHKIN, M.P., kand.tekhn.nauk

Thirteenth Congress of the International Institute of Welding.
Stroi.truboprov. 5 no.11:30-32 M '60. (MIRA 13:11)

1. Onlen-korrespondent Akademii stroitel'stva i arkhitektury
SSSR (for Turkin).
(Pipelines--Welding)

ANUCHKIN, M.P., kand.tekhn.nauk; ANENKOV, N.I., inzh.

Effect of cuts and hollows on the bearing capacity of pipe.
Stroi.truboprov. 6 no.11:6-9 N '61. (MIRA 15:4)
(Pipelines—Testing)

TURKIN, V. S.; ANUCHIN, M. P.

"Strength of Pipes and Design of High Pressure Pipelines."
Report to be submitted at the 15th Annual Assembly of the International
Institute of Welding in Oslo, 25-30 June 1962.

CHEKANOV, A.A., kand. tekhn.nauk; ANUCHKIN, M.P., kand. tekhn.
nauk, retsenzent; CHERNYAK, V.S., inzh., red.; RAGAZINA,
M.F., red.isd-va; DEMKINA, N.P., tekhn. red.

[Low-temperature welding] Svarka pri nizkikh temperaturakh.
Isd.2. perer. Moskva, Mashgis, 1962. 191 p. (MIRA 16:4)
(Electric welding)

18. 8200

39526

S/095/62/000/004/001/001

1031/1231

AUTHOR: Anuchkin, M. P., Candidate of Technical Sciences, and Makarova, Z. G., Engineer
(VNIIST, Moscow)

TITLE: Effect of plastic deformation occurring during the manufacturing processes of pipes on the physical properties of their base metal

PERIODICAL: Stroitel'stvo truboprovodov, no. 4, 1962, 13-15

TEXT: Systematic failures are known to occur in the base metal of cold-expanded pipes in Soviet and foreign pipe lines. The cold forming of pipe blanks made by die-pressing induces compressive prestraining of the order of 0.7% approx. and tensile strains averging 1.2-2.2% are created while cold-expanding the pipes. The induced stresses, although of different type and sign, accumulate and considerable cold-work strengthening of the metal takes place. American investigators have shown that precompression is followed by loss of ductility and that the fractures of prestrained specimens have a brittle appearance.

The authors studied the behavior of 14ГН (14GN) and 19Г (19G) steels used as piping material at the Chel'yabinsk Pipe Plant and concluded that compressive straining has a detrimental effect on the tensile properties of gas pipes.

Card 1/2

Effect of plastic...

S/059/62/000/004/001/001
1031/1231

As to the influence of tensile deformation produced by cold expansion on the brittle behavior of investigated steels, it was found that the yield-tensile strength ratio increases with increase of the preliminary plastic deformation induced into the pipe. Comprehensive bursting tests have demonstrated that non-expanded pipes have a higher bursting pressure than cold-expanded pipes made from the same material. The Gosstroy SSSR adopted the following formula for internal pressure which makes it possible to avoid plastic deformation while pressure testing the pipes: $0.8\sigma \geq pD/2\delta$, in which σ = yield point; p = internal pressure; D = external diameter; δ = wall thickness. Between the years 1958 and 1960, fifty failures in the base metal of cold-expanded pipes were recorded in 5,500 km of pipes laid by Glavgas SSSR, while no failure occurred in 5,200 km of non-expanded pipes. There are 6 figures and 2 tables.

Card 2/2

43274

S/842/62/000/000/003/006

E191/E435

10.7600

2708

AUTHOR: Anuchkin, N.P., Candidate of Technical Sciences
 TITLE: Brittle failures of welded tubes in major gas pipelines
 SOURCE: *Primeneniye svarki v stroitel'nykh konstruktsiyakh.*
Vses. konfor. po prim. svarki v stroi. konstr., 1961.
Moscow, Gosstroyizdat, 1962. 334-344

TEXT: Some facts about failures in Russian high pressure gas pipelines made of medium tensile carbon steel 19Г (19G) of the ChTPZ are recited. Many failures have occurred in 5460 km total length of pipeline laid in 1958-60, whereas in a similar total length of pipeline made of low tensile steel tubes no failures have occurred. A thorough investigation of failed tubes of Soviet 19G, 14ГН (14GN), 15ХГН (15KhGN) and West German (firm "Mannesman") steels has shown that they had an elongation of about 15% and impact values at +20°C of 3 to 5 kg/cm² and at -40°C of 1 to 2.5 kg/cm². In notched specimens, the reduction of area was found to drop down to 4 to 12% compared with 40 to 50% in smooth specimens. Thus, the failures were identified as brittle failures owing to inadequate ductility and excessive notch

Card 1/2

ANUCHKIN, Mikhail Pavlovich; SVYATITSKAYA, K.P., ved. red.;
~~VORONOVA, V.V.~~, tekhn. red.

[Stability of welded pipelines] Prochnost' svarnykh magistral'nykh truboprovodov. Moskva, Gostoptekhnizdat, 1963.
195 p. (MIRA 16:11)

(Gas, Natural—Pipelines)
(Corrosion and anticorrosives)

TOPIC TAGS: pipeline, steel pipeline, low temperature metal, LOROS (M) et al.

"APPROVED FOR RELEASE: 06/19/2000

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APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000101820007-2"

L 17449-66 EWT(m)/EAT(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW
 ACC NR: AP6014606 (N) SOURCE CODE: UR/0133/66/000/005/0461/0464

AUTHORS: Gulyayev, A. P.; Anuchkin, M. P.; Georgiyev, M. N.; Dogadayeva, V. A. 34

ORG: All-Union Scientific Research Institute for the Production of Pipe Mains (Vsesoyuznyy n.-i. institut po stroitel'stvu magistral'nykh truboprovodov); TsNIChM 30

TITLE: A study of the cold shortness of heat-treated steels for pipe manufacture 10

SOURCE: Stal', no. 5, 1966, 461-464

TOPIC TAGS: steel pipe, steel property, steel tempering, steel testing / 17GS steel, 14GN steel

ABSTRACT: The effectiveness of heat treating steels 17GS and 14GN to increase their resistance to cold shortness was tested. Steel 17GS was produced in the Cherepovets Metallurgical Plant (Cherepovetskiy metallurgicheskiy zavod); steel 14GN was produced in the Orsk-Khalilovskiy Metallurgical Combine (Orsko-Khalilovskiy metallurgicheskiy kombinat). Their respective elemental compositions are:

	C	Si	Mn	Ni	Cr
17GS	0.19	0.43	1.35	0.36	—
14GN	0.16	0.34	1.00	0.50	0.16
	S	P	O ₂	H ₂	N ₂
17GS	0.014	0.01	0.003	0.0004	0.003
14GN	0.027	0.02	0.023	0.0007	0.005

Card 1/2

UDC: 669.14.018.85

ACC NR: AF6014606

Fragments cut from the pipes were heat treated and machined into specimens for mechanical testing. The type of heat treatment is explained. Mechanical properties of the two materials were tested for their change in respect to the temperature of tempering, and the results of these tests are presented graphically. In the tension tests, the method of H. A. Kahn and E. A. Imhomo (The Welding Journal, 1950, v. 29, No. 2, p. 345--363) was applied. A study of impact strength revealed an almost straight-line relation between this property and the cross section width. The type of failure and the crack formation were investigated and are shown for various temperatures and areas, while the microstructure of the two steels at various types of tempering is presented photographically. The materials were further tested for their embrittlement at various heat treatments, with the results of the embrittlement experiments shown in a table. It is noted that steel 17GS is most resistant to embrittlement after being hardened and tempered at 600C, and steel 14GN at 500C. Temperatures of -60 and -40C are, respectively, the lowest to which the two investigated steels may be subjected. Orig. art. has: 9 figures, 1 microphotograph, and 1 table.

SUB CODE: 13.11/SUBM DATE: none/ ORIG REF: 001/ OTH REF: 004

Cord 2/2

mjs

MALYSHIN, F.A., kandidat tekhnicheskikh nauk; SADOVNICHIIY, V.V., kandidat
tekhnicheskikh nauk; ANUCHKIN, M.V., inzhener

Hydraulic preparation of peat fertilizers. Izv. AN BSSR no.1:89-98
Ja-F '55. (Peat) (MIRA 8:7)

15-57-7-1030
Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7,
p 253 (USSR)

AUTHORS: Bodilovskiy, V. A., Malyshev, F. A., Anuchkin, M. V.

TITLE: Preparation of Peat for Soil Conditioning with the
Help of the UMPF-4 Peat Loader (Zagotovka torfa na
udobreniye s primeneniym mashiny UMPF-4 i uchet torfa)

PERIODICAL: Tr. In-ta torfa AN BSSR, 1956, Vol 5, pp 32-46

ABSTRACT: The present article describes tests of the UMPF-4
peat loader conducted in 1951 in one of the peat bogs
of the Minsk district. The tests were conducted by
the Peat Institute of the Academy of Sciences of the
Belorussian SSR in collaboration with the "DUKORA"
Peat Experiment Station. The machine was tested for
loading peat to be used as fertilizer, that is, peat
with a moisture content of 60 percent. The peat
deposit on which the tests were made is described.

Card 1/4

15-57-7-10367

Preparation of Peat for Soil Conditioning (Cont.)

capacity of the UMPF-4 peat loader per 8 hours of peat loading is 4 to 5 hectares; the average amount of peat loaded (with 60 percent moisture content) is 50 tons per hectare. The cost per ton of loading and hauling the peat is 2 to 2.5 rubles for a hauling over a distance of 150 m to 200 m. This loader will require the following modifications for wider use: 1) the undercarriage will need to be strengthened; 2) the load capacity will need to be reduced from 12 cu m to 9 or 10 cu m; 3) the manner of unloading the peat onto trucks or other conveyances will need to be modified, or the height of unloading into piles will need to be adjusted to from 2 m to 215 m. Properties and production of the various machines used in conjunction with the UMPF-4 loader are given. The amount of peat loaded is calculated after it has been brought into storage. Where peat is produced with the help of farming machinery MTS, the author recommends that a running account and a final inventory be taken. The former is necessary for keeping track of time spent by workers occupied in this operation and for planning the time of year when

Card 3/4

AMUZIKIN, N. N., Eng.; GABRUYON, E. Ye., Eng.; PODOLNYY, L. Ye.

Excavating Machinery

- Excavating grader with a capacity between 1000-2,000 cu. meters per hour. Mekh. stroi. 18, No. 2, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

ANUCHKIN, N.N., inzhener; BOGOMOLOV, S.P., inzhener; STEPANOV, V.G.,
laureat Stalinskoy premii.

The SM-301 press for moist pressing bricks. Mekh.stroi. 11 no.12:32-
34 D '54. (MIRA 8:1)
(Brickmaking machinery)

ANUCHKIN, N.N., inzhener; GARBUZOV, Z.Ye., inzhener; SMIRNOV, A.F.,
inzhener.

Prospective developments in high productivity earthmoving machines.
Stroi. i dor.mashinostr. 1 no.2:15-17 F '56. (MIRA 10:1)
(Earthmoving machinery)

ANUCHKIN, M.N.; GARBUZOV, Z.Ye.; MIKHAYLOV, P.M.

The E-155 universal building excavator. Biul.tekh.-ekon.inform.
no.11:48-50 '59. (MIRA 13:4)
(Excavating machinery)

ANUCHKIN, N.N., inzh.; GARBUZOV, Z.Ye., inzh.; ZAYTSEV, L.V., inzh.;
KULIKOV, A.P., inzh.; MIKHAYLOV, P.M., inzh.

E-155 and E-156 building excavators with caterpillar drive or with
pneumatic tires. Stroi. i dor. mashinostr. 5 no.5:5-9 My '60.
(MIRA 14:4)

(Excavating machinery)

ANUCHKIN, N.N., inzh.; GARBUSOV, Z.Ye., inzh.; MIKHAYLOV, P.M., inzh.

The K-2,5-1E motor crane with a 2.5 ton capacity. Stroil. i dor. mash.
6 no.4:7-10 Ap '61. (MIRA 14:3)
(Cranes, derricks, etc.)

KAZARINOV, V.M., kand. tekhn. nauk; IZHEVSKIY, K.K., inzh.; FOKHT, L.G., inzh.; KOTSANDI, I.A., inzh.; ANUCHKINA, N.F., inzh.; POLYAKOV, V.I., kand. tekhn. nauk; GLAZUNOV, V.N., kand. tekhn. nauk; PAVLOVA, Ye.N., inzh.; POLOSIN, M.D., inzh.; KROMOSHCH, I.L., inzh., nauchn. red.; SHERSTNEVA, N.V., tekhn. red.

[Manual on the mechanization of small-scale operations carried out on building sites remote from major construction points] Spravochnoe posobie po mekhanizatsii melkikh rassredotochennykh stroitel'nykh rabot. Moskva, Stroiizdat, 1964. 415 p. (MIRA 17:3)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.

ACCESSION NR: AP4012071

S/0020/64/154/002/0247/0250

AUTHOR: Anuchina, N. N.

TITLE: Difference schemes of solving the Cauchy problem for symmetrical hyperbolic systems

SOURCE: AN SSSR, Doklady*, v. 154, no. 2, 1964, 247-250

TOPIC TAGS: Cauchy problem, hyperbolic system, mathematical analysis, symmetrical equation system, real function, difference approximation

ABSTRACT: Difference schemes were given for solving the Cauchy problem of a linear, symmetrical, hyperbolic system with "s" independent variables and "m" unknown functions. The solutions are convergent in the norm L_2 . The system can be represented as: $\frac{\partial u}{\partial t} + \sum_{k=1}^s A^k \frac{\partial u}{\partial x_k} + Bu = f$, $u(x, 0)|_{t=0} = u_0(x)$.

where $x = (x_1, \dots, x_s)$ is the point of the real space $R_s: -\infty < x_k < +\infty$, $0 < t < T$; $u(x, t)$, $f(x, t)$ is the vector function with values in the m-dimensional real space; $A^k(x, t)$,

Cord 1/2

ACCESSION NR: AP4012071

$B(x, t)$ are real and symmetrical m by m matrices. It is assumed that $u_0(x) \in L_2(-\infty, +\infty)$. The scalar product and norm are determined by

$$(u, v) = \int \sum_{k=1}^m u^{(k)} v^{(k)} dx = \int u' v' dx, \quad \|u\|^2 = (u, u).$$

For a linear operator C :

$$\|C\| = \sup_{\|u\|=1} \|Cu\|.$$

In view of the system's symmetry and hyperbolicity, the Cauchy problem is correct in $L_2(-\infty, +\infty)$. Because A^k are real, symmetrical matrices, they are orthogonally similar to the diagonal matrices with real functions on the diagonals. Some difference approximations of the problem are given. "Study was performed under guidance of N. N. Yanenko, whom the author thanks." Orig. art. has: 14 equations.

ASSOCIATION: None

SUBMITTED: 18Jul63

ATD PRESS: 3046

ENCL: 00

SUB CODE: MA

NO REF SOV: 001

OTHER: 003

Cord 2/2

ACC NR: AT7004274

SOURCE CODE: UR/2517/66/074/000/0005/0015

AUTHOR: Anuchina, N. N.

ORG: none

TITLE: Some finite difference schemes for hyperbolic systems

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 74, 1966. Raznostnyye metody resheniya zadach matematicheskoy fiziki (Difference methods for solving problems in mathematical physics), pt. 1, 5-15

TOPIC TAGS: finite difference, Cauchy problem, hyperbolic equation

ABSTRACT: The convergence in the L_2 -norm of some finite difference solutions to the linear, symmetric Cauchy problem for hyperbolic systems is investigated. The equation under study has s -independent variables and m -unknown functions; it is given by

$$\frac{\partial u}{\partial t} + \sum_{k=1}^s A^k \frac{\partial u}{\partial x_k} + Bu = f, \quad u(x, t)|_{t=0} = u_0(x). \quad (1)$$

The algorithm of the finite difference schemes is constructed according to the following rules: 1) the A^k matrix is represented by the sum of two symmetric matrices, one of which is nonnegative and the other nonpositive; 2) the s -dimensional hyperbolic system is substituted by s -dimensional systems using a "splitting" method; 3) the difference operator is approximately factorized. Equation (1) is then written in the

Cord 1/2

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[Ultrasonic control of welded heads of stator winding rods of
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